

ALLEN&HEATH

GL3300

Dual Function Audio Mixing Console

USER GUIDE

PUBLICATION: AP3102

LIMITED ONE YEAR WARRANTY

This product has been manufactured in the UK by ALLEN & HEATH and is warranted to be free from defects in materials or workmanship for a period of one year from the date of purchase by the original owner.

To ensure the high level of performance and reliability for which this equipment has been designed and manufactured please read this User Guide before use.

In the event of a failure notify and return the defective unit to ALLEN & HEATH or its authorised agent as soon as possible for repair under warranty subject to the following conditions:

1. The equipment has been installed and operated in accordance with the instructions in the User Guide.
2. The equipment has not been subject to misuse either intended or accidental, neglect, or alteration other than as described in the User Guide or Service Manual, or approved by ALLEN & HEATH.
3. Any necessary adjustment, alteration, or repair has been made by ALLEN & HEATH or its authorised agent.
4. The defective unit is to be returned carriage prepaid to ALLEN & HEATH or its authorised agent with proof of purchase.
5. Units to be returned should be packed to avoid transit damage.

These terms of warranty apply to UK sales. In other territories the terms may vary according to legal requirements.



This product complies with the European Electromagnetic Compatibility Directives 89/336/EEC & 92/31/EEC and the European Low Voltage Directives 73/23/EEC & 93/68/EEC.

NOTE: Any changes or modifications to the console not approved by Allen & Heath could void the compliance of the console and therefore the user's authority to operate it.

Manufactured In England

Allen & Heath Limited.
Kernick Industrial Estate,
Penryn, Cornwall, TR10 9LU, UK
<http://www.allen-heath.com>

ALLEN&HEATH



INTRODUCTION

The **GL3300** continues ALLEN & HEATH's commitment to provide high quality audio mixing consoles engineered to meet the exacting requirements of today's audio business. It brings you the latest in high performance technology and offers the reassurance of over two decades of console manufacture and customer support.

This user guide presents a quick reference to the function, application and installation of the **GL3300**. For further information on the basic principles of audio system engineering please refer to one of the specialist publications available from bookshops and audio equipment dealers.

Whilst we believe the information in this guide to be reliable we do not assume responsibility for inaccuracies. We also reserve the right to make changes in the interest of further product development.

SERVICE AND TECHNICAL SUPPORT

Under normal conditions the **GL3300** does not require user maintenance or internal calibration. Any service work required should be carried out by qualified service personnel only.

We are able to offer further product support through our worldwide network of approved dealers and service agents. To help us provide the most efficient service please keep a record of the console serial number, and date and place of purchase to be quoted in any communication regarding this product.



SAFETY WARNING



Mains electricity is dangerous and can kill. Mains voltage is present within the power supply unit provided with the console. Do not remove the power unit cover with mains connected. The correct mains voltage setting is indicated on the rear of the power unit. Check your mains wiring and earthing before switching on.

DO NOT REMOVE THE MAINS EARTH CONNECTION!

The console chassis is connected to mains earth to ensure your safety. Audio 0V connects to the console chassis internally. Should problems be encountered with ground loops operate the audio ground lift switches on connected equipment accordingly or disconnect the cable screens at one end. Refer to the section on 'EARTHING' later in this User Guide.

PRECAUTIONS.

- **AC POWER:** Check the power unit for correct AC mains voltage setting before switching on. Allow adequate space around the unit for ventilation.
- **CONNECTIONS:** Use audio connectors and cables only for their intended purpose. Do not connect any source of AC or DC power to the console audio connectors. Do not connect the output of power amplifiers directly to the console.
- **CLEANING:** Avoid the use of chemicals, abrasives and solvents. The control panel is best cleaned with a soft brush and lint-free cloth. To remove stubborn marks (such as chinagraph pencil) isopropyl alcohol may be used.
- **LUBRICATION:** The faders, switches and potentiometers are lubricated for life. The use of electrical lubricants on these parts is not recommended.
- **DIRT, DUST, SMOKE and MOISTURE:** Prevent damage to the moving parts, such as faders and potentiometers, and cosmetics by avoiding drinks spillage, tobacco ash and smoke, and exposure to rain and condensation. Protect from excessive dirt, dust, heat and vibration.

INSTALLING THE POWER SUPPLY UNIT

Refer to the **SAFETY WARNING** on the first page of this User Guide.

The **GL3300** is supplied with either the **RPS9** or the **RPS11** power supply unit. The console can work with either supply. Consoles from serial number **004196** have been shipped with the **RPS11**. A second power supply can be connected through the optional **RPSD2** combiner to provide a backup or 'redundant' supply.

The power supply converts the AC mains voltage to the regulated positive and negative DC voltages required to power the console. It also provides the +48V DC phantom power voltage for use with high quality powered microphones. Input is via the IEC mains cable with moulded plug suitable for the local supply as provided with the unit. The IEC mains input socket includes a fuse and voltage selector which must be set to match the local supply voltage. The output connects to the console via a 2.9 metre DC power cable fitted with locking 5 pin XLR plug. The **RPS9** has a captive DC cable. The **RPS11** has a separate DC cable which connects to the power supply using a screw locking 10 pin circular plug. To ensure the best performance we recommended that you do not extend the DC cable or site the power supply more than 2.9 meters away from the console. The power supply may be operated free standing or mounted in a 19" rack. The **RPS9** requires 2U rack space. The **RPS11** requires 3U rack space. As with any power supply unit it is best positioned away from the console or other signal processing equipment containing sensitive low level audio signals to avoid the possibility of hum pickup. Please read the warnings printed below:



Check that the voltage indicated in the fuseholder window is the same as the mains supply in your area.



To avoid the risk of fire replace the fuse only with the correct type and value as specified on the unit.



It is normal for the power unit to dissipate heat. **Ensure adequate ventilation around the unit.** Do not cover the unit or position it on soft furnishings during operation. Do not position other equipment known to generate significant amounts of heat below the unit. It is recommended that rack units containing high power amplifiers and other heat dissipating equipment are fitted with cooling fans.



Always switch the power unit off before connecting or disconnecting the console power cable.



This unit contains no user serviceable parts. Do not remove the cover. Refer servicing to qualified service personnel only.

The **RPS9** and **RPS11** power supplies conform to safety standard **EN 60065**

EARTHING THE AUDIO SYSTEM

The console chassis is connected to mains earth via the DC power cable. Audio 0V is connected to the chassis and therefore mains earth. In this way all signal returns and connector shields are connected to mains earth at the console.



To ensure operator safety do not remove the earth connection from the power supply mains plug.

For best performance it is important that the earth system is solid, clean and noise-free. To prevent mains born and external interference pickup from lighting equipment, motors and other mains powered equipment it is recommended that a separate 'clean' mains distribution outlet is used for the audio system.

All signal cables should have their screens connected to earth at the connector. If earth (ground) loop problems result in audible hum or buzz then disconnect the cable screen connection at one end, usually the destination end. This may be done within the cable plug or by operating the 'ground lift' switch if available on the connected equipment. Many DI boxes and power amplifiers include this facility.

PLUGGING UP THE CABLES

Where possible use balanced connections to prevent noise and interference pickup especially on long microphone cable runs. Avoid running audio cables next to mains, computer or lighting cables, or near thyristor dimmer units, power supplies etc. The use of low impedance sources such as good quality microphones of 200 ohms or less significantly reduces interference pickup. Many problems can be avoided by taking time to check that all cables are correctly wired (in-phase) with professional quality cable and carefully soldered joints. The following wiring convention is used:

XLR

pin 1 = 0V earth shield

pin 2 = hot (+ve - in phase signal)

pin 3 = cold (-ve - out of phase signal)

1/4" jack

tip = hot / +ve/signal / left / send

ring = cold / -ve/ 0V / right/ return

sleeve = 0V earth shield

To connect an unbalanced source to a balanced console input, link the cold input (XLR pin 3 or jack ring) to 0V earth (pin 1 or jack sleeve) at the console. To connect a balanced console output to an unbalanced destination link the cold output to 0V earth at the console.



Switch off the input channel +48V when using non-phantom powered, line or unbalanced sources.

ADJUSTING THE LEVELS

For best performance it is important that the connected source signals are matched to the "normal operating level" of the console. Similarly the console outputs should be correctly matched to the operating levels of the connected amplifiers and destination equipment. If too high the signal peaks will be clipped resulting in a harsh distorted sound, and if too low the signal-to-noise ratio is reduced resulting in excessive background hiss.

For best results operate the console with the meters averaging '0' or just below and allowing the loudest passages and occasional peaks into the 'yellow'. Reduce the gain if the peak indicators flash (red). The **GL3300** produces a standard XLR output level of +4dBu for a meter reading of 0VU. It is advisable to adjust the power amplifier input gain or fit an attenuator pad if normal console operation results in an output level too high for the connected amplifier. Normal operation should result in fader levels around the '0' mark.

The **GL3300** has an advanced **PFL** (pre-fade listen) / **AFL** (after-fader listen) and channel metering system to let you listen to and check the level of signals at different points in the signal path without affecting the main outputs. Use the channel **PFL** switches to set up the input **GAIN** controls to read an average '0' (yellow LED). Signal activity is always shown on the channel meters regardless of fader mute switch position. The green 'SIG' LED lights at -20dBu to indicate signal presence, the green '0' LED indicates normal level, and the red 'PEAK' LED warns of potential overload 5dB before clipping.

GL3300

The ALLEN & HEATH **GL3300** represents a breakthrough in price versus performance and functionality. It offers the professional user a new level of versatility to quickly adapt to the exacting demands of live sound engineering today. The **GL3300** is developed from the successful **GL3000** console which includes innovative 'mode switching' that quickly converts the console from Front-of-House to On-stage Monitor operation. Apart from continuing the development of this unique feature, the **GL3300** packs in more features and performance at the same price point of the mixer it succeeds.

FEATURES

- ✓ Easy to use intuitive layout.
- ✓ 16, 24, 32 and 40 channel frames each with customer configurable mono and stereo input modules.
- ✓ Mono and stereo channel bolt-on expanders available to extend up to a maximum 40 channels.
- ✓ Separate safety approved power supply unit.
- ✓ **SYS-LINK** buss expander option.
- ✓ VU meterpod for 24, 32 and 40 models.
- ✓ 4 assignable mute groups for combined channel control.
- ✓ L, R outputs on balanced XLR with inserts.
- ✓ Mono sum output on balanced XLR with mode switching to 'listen wedge' monitor.
- ✓ 8 subgroups, with 4 available outputs on balanced XLR with inserts.
- ✓ All 8 group outputs available on 25pin D connector as an option.
- ✓ L-R, mute and pan on each subgroup.
- ✓ 2 matrix outputs on faders fed from L, R, 8 subgroups and stereo returns.
- ✓ 8 aux sends, 4 on jack, 4 on balanced XLR outputs with inserts.
- ✓ Mode switching to convert console to on-stage monitor status with 8 mono and 1 stereo sends.
- ✓ 2 stereo returns with faders and routing.
- ✓ 2-track record and replay with level controls.
- ✓ Individual talkback to all aux sends.
- ✓ Extensive monitoring and metering facilities
- ✓ Gooseneck lamp connector.
- ✓ Advanced channel features including +48V, phase switch, lo-cut filter, meter and insert.
- ✓ Direct output on mono channels.
- ✓ 4 band 2 sweep EQ with wide ranging frequency sweep and +/-15dB boost/cut.
- ✓ Pre-post aux switching with additional internal link options.
- ✓ Stereo mic/line channels with XLR/Jack inputs and inserts.
- ✓ High performance circuitry used for low noise and sonic purity.
- ✓ High quality, proven reliable parts used throughout.
- ✓ Rear mounted connectors, comfortable soft armrest, wide write-on strips.
- ✓ Rugged metal beam construction for on-the-road rigidity, easily flightcased and transported.
- ✓ Removeable steel base for easy access to individual circuit assemblies.

OPTIONS & ACCESSORIES

There are a range of options and accessories available for the GL3300 range. All are supplied complete with fixings and installation and operating instructions. Contact your nearest Allen & Heath dealer if you wish to purchase an option or accessory.

VU meterbridge

Units from Serial Number 002200 include a built-in VU Meterpod as standard. An optional VU Meterpod is available for earlier units. Contact your nearest A&H dealer for details.

Expander

The GL3300 can be expanded up to a maximum of 40 input channels. The expander is an 8 channel wide bolt on module with full function input channels and soft armrest. It can be fitted to the left or right hand side of the console depending on the console format. The expanders are available in 4 different formats.

8 MONO INPUT CHANNEL EXPANDER



Order Code: GL3300-8M

8 STEREO INPUT CHANNEL EXPANDER



Order Code: GL3300-8S

4 MONO & 4 STEREO INPUT CHANNEL EXPANDER



Order Code: GL3300-4MS

4 STEREO & 4 MONO INPUT CHANNEL EXPANDER



Order Code: GL3300-4SM

SYS-LINK Buss Expander Kit

The SYS-LINK expander option allows console to console interconnection by means of just two cables. By connecting two GL3300 consoles together or to any other A&H console fitted with the SYS-LINK option, the number of input channels can be increased. One console acts as a channel expander (slave) to the second (master). Please note, the SYS-LINK option kit requires the installation and wiring of a circuit board (PCB) assembly and should only be fitted by technically competent service personnel.

SYS-LINK BUSS EXPANDER KIT
(for one console only)

Order Code: GL3300-SL1

8 Group Output option Kit

The 8 Group Output option allows direct access to all 8 groups in the console. This is in addition to group outputs 5-8 on XLR connectors on the rear panel. This option uses one of the SYS-LINK connector mounting holes and may need to be repositioned if the SYS-LINK option is already fitted. Please note, the 8 Group Output option kit requires the installation and wiring of a circuit board (PCB) assembly and should only be fitted by technically competent service personnel.

8 GROUP OUTPUT OPTION KIT

Order Code: GL3300-8GD

RPSD2 Dual Supply Combiner

The RPSD2 is designed to monitor the DC power supply to the GL3300 console. With an additional power supply the RPSD2 will quickly and silently change over to the backup supply should the original power supply fail.

RPSD2 DUAL SUPPLY COMBINER

Order Code: RPSD-2/3K

RPS9POWERSUPPLY
(additional power supply for use with RPSD2)

Order Code: RPS9/Volts

RPS11POWERSUPPLY
(additional power supply for use with RPSD2)

Order Code: RPS11/Volts

GL3300 Flightcase

The GL3300 may be fitted into a touring flightcase. Contact your A&H dealer for details of your nearest flightcase manufacturer. The dimension details are provided at the rear of this guide.

Miscellaneous

Please contact your nearest Allen & Heath dealer for the parts listed below.

GL3300 SERVICE MANUAL

Order Code: AP3103

GL3300 SPARESKIT

Order Code: 002-096

MAINS LEAD - EUROPE (2PIN)
(RPS9 & RPS11 power supplies)

Order Code: AH0205

MAINS LEAD - USA C33 (3PIN)
(RPS9 & RPS11 power supplies)

Order Code: AH0323

MAINS LEAD - UK (3PIN)
(RPS9 & RPS11 power supplies)

Order Code: AH0206

RPS11 DC CABLE ASSEMBLY

Order Code: 002-225

SPECIFICATION

0 dBu = 0.775 Volts RMS
0 dBV = 1 Volt RMS

INTERNAL OPERATING LEVEL: -2 dBu
INTERNAL HEADROOM: +21dB channels, +23dB mix to output.
MAX OUTPUTS: balanced +27dBu >2 kohm max load
unbalanced +21dBu >2 kohm max load

METERS: L, R peak reading 12 segment LED
Groups 1-8 peak reading 4 LEDs
Channels peak reading 3 LEDs

PEAK LEDs: Turn on 5dB before clipping

METERPOD: Illuminated VU meters with
Groups 1-8, L, R and
Mono (PFL/AFL) levels
PFL/AFL active indicator

POWERSUPPLY: RPS9 2U x 19" rack mount
RPS11 3U x 19" rack mount

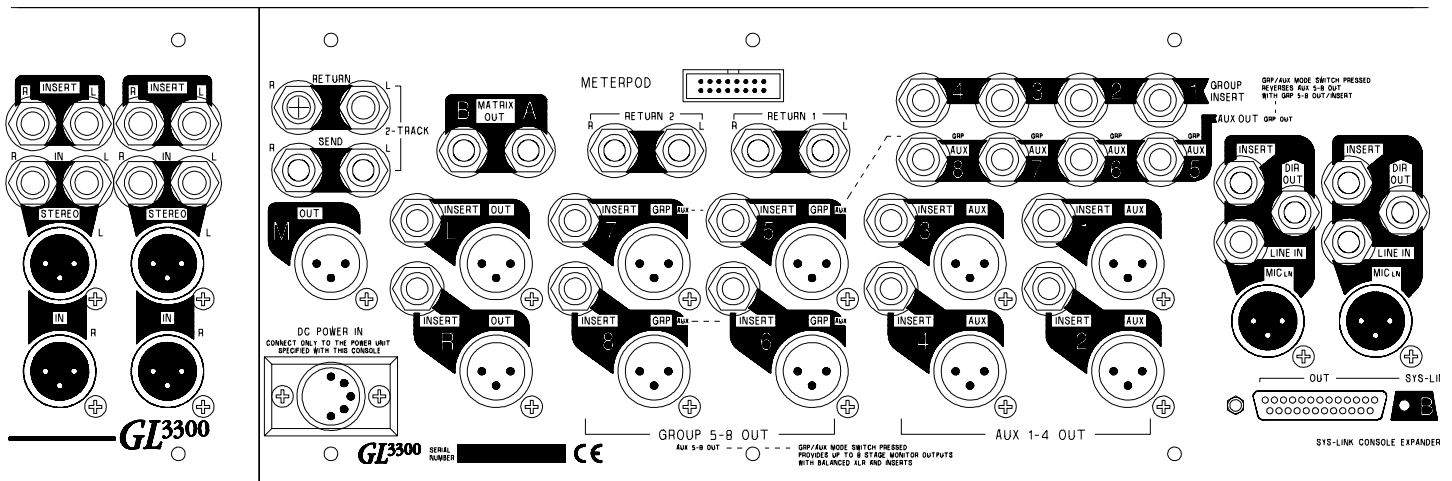
AC Mains input: range 100V to 240V AC 50/60Hz
Set with 4 position fuse insert

FREQUENCY RESPONSE: 20Hz to 30kHz +0/-1dB

DISTORTION: THD + Noise at +14dBu 1kHz
Mic in to LR out at +40dB gain 0.01%
Line in to LR out at 0dB gain 0.01%

CROSSTALK: Referred to driven channel at 1kHz
Adjacent channel <-100dB
Fader shutoff <-90dB
Mute shutoff <-90dB
Panpot shutoff <-72dB

NOISE: Measured RMS 22Hz to 22kHz bandwidth
Mic input EIN referred to 150 ohm source <-128dB
Line input pre-amp at 0dB gain <-93dBu
LR output residual noise <-98dBu 102dB S/N
LR faders '0' no channels routed <-90dBu 94dB S/N
LR mix noise with 16 channels routed <-86dBu 90dB S/N
Group mix noise with 16 channels routed <-87dBu 91dB S/N



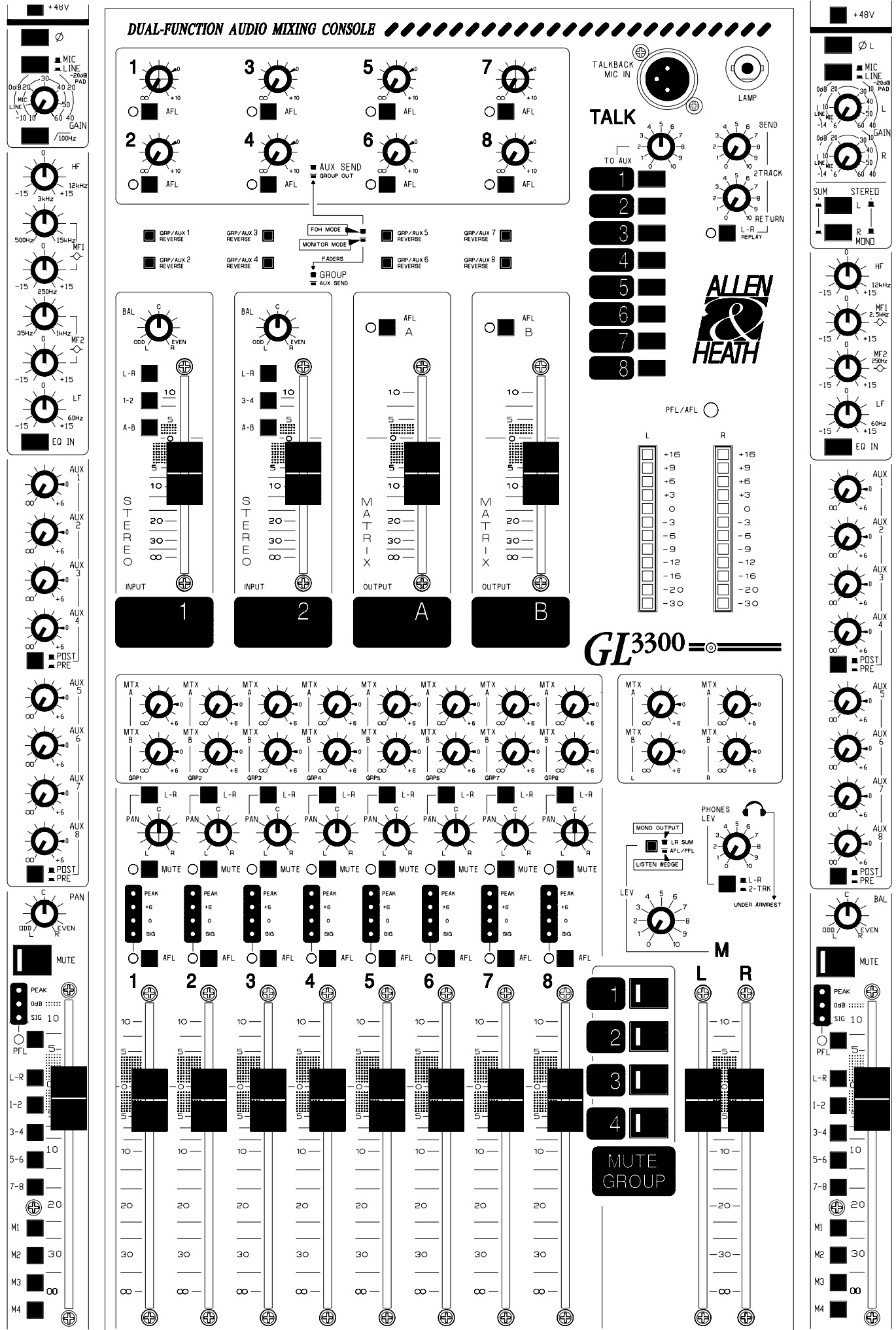
INPUTS:

MIC IN	..... XLR	..... pin 2 hot, 3 cold, balanced	..... 2 kohms	..... variable -60 to -10 dBu
LINE IN	..... XLR	..... pin 2 hot, 3 cold, balanced	..... 10 kohms	..... variable -40 to +10 dBu
	or 1/4" JACK	..... tip hot, ring cold, balanced	..... 10 kohms	..... variable -40 to +10 dBu
STEREO LINE IN	..... XLR	..... pin 2 hot, 3 cold, balanced	..... 10 kohms	..... variable -40 to +14 dBu
	or 1/4" JACK	..... tip hot, ring cold, balanced	..... 10 kohms	..... variable -40 to +14 dBu
STEREO RETURN	..... 1/4" JACK	..... tip sig, ring gnd, unbalanced	..... >6 kohms	..... -10dBV min
2-TRACK RETURN	..... 1/4" JACK	..... tip sig, ring gnd, unbalanced	..... >16 kohms	..... variable -10 dBV min
INSERT RETURN	..... 1/4" JACK	..... tip send, ring ret, unbalanced	..... >6 kohms	..... 0dBu (chan), -2dBu (out)

OUTPUTS:

L, R, MONO OUT	..... XLR	..... pin 2 hot, 3 cold, balanced	..... <75 ohms	..... +4 dBu +27 dBu max
GROUP OUT 5-8	..... XLR	..... pin 2 hot, 3 cold, balanced	..... <75 ohms	..... +4 dBu +27 dBu max
GROUP OUT 1-8 option	..... 25way D type	..... impedance balanced	..... <75 ohms	..... +4 dBu +27 dBu max
AUX OUT 1-4	..... XLR	..... pin 2 hot, 3 cold, balanced	..... <75 ohms	..... +4 dBu +27 dBu max
AUX OUT 5-8	..... 1/4" JACK	..... tip hot, ring cold, impedance balanced	..... <75 ohms	..... -2 dBu +21 dBu max
MATRIX OUT A-B	..... 1/4" JACK	..... tip hot, ring cold, unbalanced	..... <75 ohms	..... -2 dBu +21 dBu max
(balance option)	..... 1/4" JACK	..... tip hot, ring cold, balanced	..... <75 ohms	..... +4 dBu +27 dBu max
2-TRACK SEND	..... 1/4" JACK	..... tip hot, ring cold, impedance balanced	..... <75 ohms	..... variable +21 dBu max
INSERT SEND	..... 1/4" JACK	..... tip send, ring ret, unbalanced	..... <75 ohms	..... 0dBu (chan), -2dBu (out)
DIRECT OUT	..... 1/4" JACK	..... tip hot, ring cold, impedance balanced	..... <75 ohms	..... 0dBu +21 dBu max
PHONES OUT	..... 1/4" JACK	..... tip left, ring right	.....	for stereo headphones 30 to 600 ohms

FRONT PANEL LAYOUT



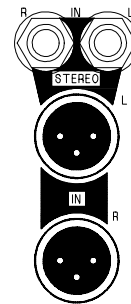
INPUT CHANNELS

For line sources on XLR simply plug into the XLR with the jack socket unplugged.

MONO



Plug in a microphone or line level source. Use balanced cables where possible to prevent interference pickup on long cable runs. Unbalanced sources may be connected by linking signal cold to ground (XLR pin 3 to pin 1, jack ring to sleeve) at the connector.



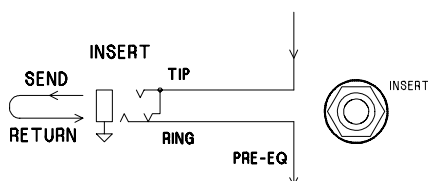
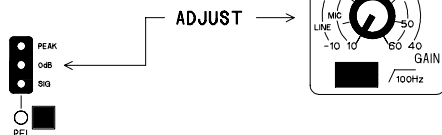
For line sources on XLR simply plug into the XLR with the jack socket unplugged.

STEREO

Switch off channel +48V when the inputs are connected to non-phantom powered, line or unbalanced sources.

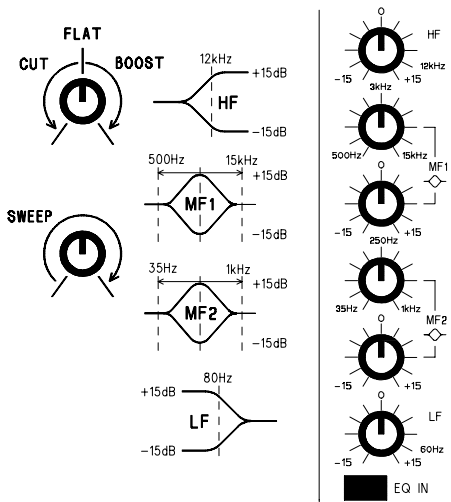
For balanced microphones which require phantom power select **+48V**. If required this switch may be disabled by an internal link.

Use the **PFL** system to listen to the signal and fine tune the gain setting.



Plugging a jack into the **INSERT** socket breaks the signal path between the input preamp/filter and the **EQ** to let you add an external signal processor such as a compressor or noise gate into the channel signal path

Use a suitable Y-lead or suitable TRS jack lead to connect to the external processor.



φ PHASE reverses the phase of the input source to correct the phase differences often encountered in microphone placement, or due to incorrectly wired cables (pin 3 hot instead of pin 2). May also be used to minimise acoustic feedback between closely positioned loudspeakers and mics in live sound mixing. The stereo **φL** reverses the left input phase only to correct for differences between left and right signals, or for MS microphone techniques.

MIC/LINE selects line sensitivity on the jack input when pressed. Or becomes a 20dB pad for the XLR input when no jack is plugged in.

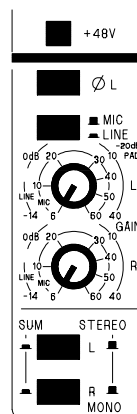
GAIN matches the level of the input source to the normal operating level of the console. Adjust this to read an average '0dB' on the channel meter (yellow LED). Use the **PFL** system to listen to the signal and fine tune the gain.

100Hz lo-cut filter removes low frequency noise such as microphone pops, stage noise and transport rumble before the pre-amp stage. The lo-cut filter is independent of the equaliser.

The **4-band EQ** lets you adjust the tonal quality of the sound in 4 separate bands. HF (treble) and LF (bass) are shelving while the 2 mid bands **MF1 & MF2** are peak/dip with a Q of 1.6. This is optimum for both corrective and creative equalisation. The controls are centre detented for centre flat response. Press **EQ IN** to switch the EQ into the signal path.

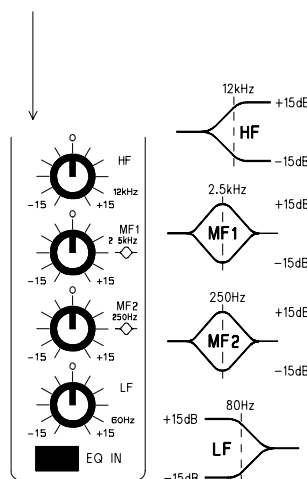
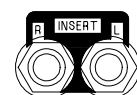
The 2 mid frequency bands on the mono input channel may be swept across a wide frequency range to tune into the exact frequency required. The mid bands are overlapping to provide additional cut or boost when required.

The EQ on the stereo inputs has the 2 mid frequencies at 250Hz and 2.5kHz. This provides optimum control over boomy or boxy sounds (**MF2**), and to add presence and sparkle to vocals etc. (**MF1**). The stereo channels are well suited to stereo miking, dual mic mixing, or returning keyboards and effects processors to the mix and monitors.



Separate **GAIN** controls for L and R inputs let you adjust the balance between the sources, or treat each as a separate source.

Both **L** and **R** up gives you a true stereo channel. Press both to mono the source. Press just one to select one side only as a mono source.



8 AUX SENDS

8 AUX SENDS provide ample feeds for foldback monitors and effects. These are in two groups of four each with a **POST/PRE** switch to source the sends either pre-fader or post-fader.

AUX 1-4 feed balanced XLR outputs capable of driving long cable runs and include **INSERT** points. These are normally used to provide **MONITOR SENDS** to the performers and stage crew, although they can be used for additional effects. Plug a graphic EQ into the insert to 'ring out the monitor' (tune) to the stage acoustics to minimise feedback. The effect of the EQ can be listened to using the aux master **AFL** system. Monitor sends are usually set pre-fade, although some sources such as radio mics can be set post-fade to avoid 'dressing room' talk spill. Note stereo input channel aux sends are the mono sum of left and right.

AUX 5-8 feed jack outputs and are normally used to provide **EFFECTS SENDS** to external devices such as reverb and delay effects units. Effects sends are set post-fade so that the amount of effect (wet signal) is always relative to the position of the fader (dry signal). Adjust the amount of effect required for each channel using its **AUX** control. The effect is returned to the mix through another channel, usually the stereo return described later in this guide.

Note; when the **GRP/AUX REVERSE 5-8** switches are pressed in the master section **AUX SENDS 5-8** feed XLR outputs with inserts. **GROUPS 5-8** are re-routed to **AUX 5-8** jack outputs.

POST-FADE sends are always post-EQ, post-mute. **PRE-FADE** sends are set post-EQ, post-mute as standard, but may be internally reset to be pre-EQ, pre-mute or post-EQ, pre-mute. Each **AUX SEND** may be internally set to be permanently pre or post-fade rather than follow the panel switch. Refer to the Internal Link Options section in this user guide.

PAN positions the channel signal between the Left **L** and Right **R** outputs when the **L-R ROUTING** switch is pressed. **PAN** also positions the channel signal between the **ODD** groups e.g. 1, 3, 5, 7 and **EVEN** groups e.g. 2, 4, 6, 8 when the **ROUTING** switches are pressed. This lets you position the sounds within a stereo image. In this way subgroups may be set up in mono by turning the **PAN** fully left **L** or right **R** or in stereo by setting **PAN** between **L** and **R** to feed a pair of groups.

MUTE switches the signal off when pressed. A muted channel is indicated by the illuminated switch. The channel meter continues to indicate pre-mute and fader channel activity. The mute switch also illuminates when the channel is muted by one of the 4 **MUTE GROUPS**.

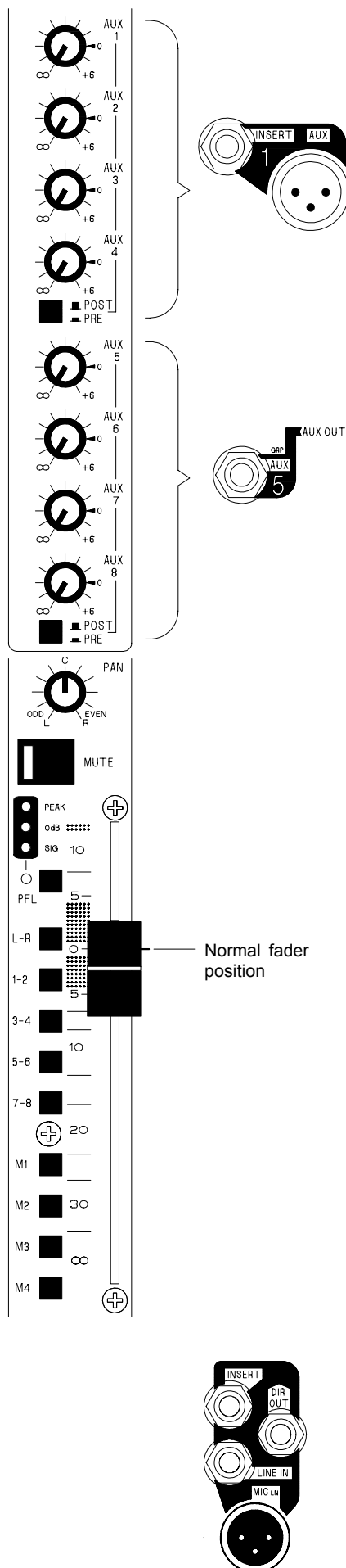
Switches **M1**, **M2**, **M3**, **M4** next to the fader, assign which mute group the input channel will be assigned to. This is controlled by the **MUTE GROUP** switches located in the master section.

A 100mm long throw **FADER** provides +10dB boost above the normal '0' operating level.

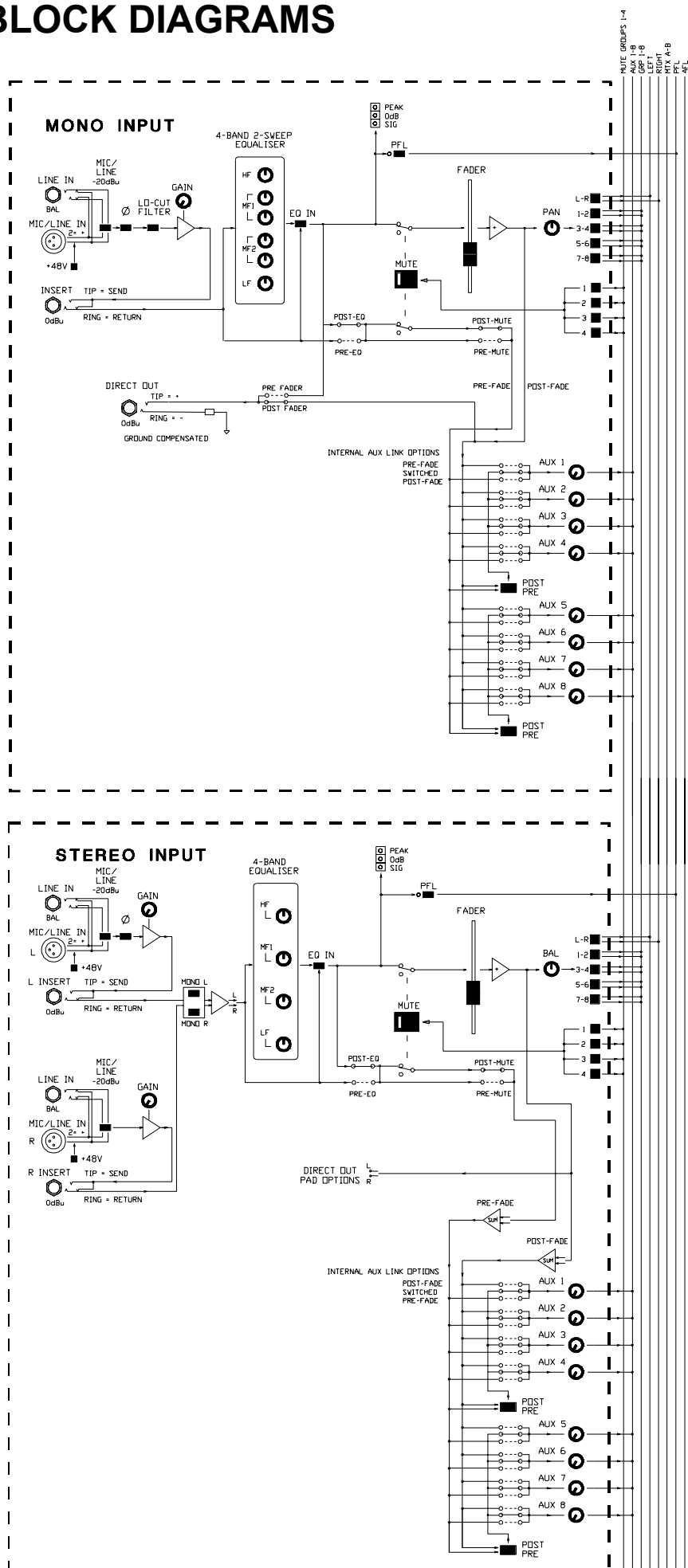
A 3 LED **CHANNEL METER** system shows signal activity at all times. The green **SIG** LED indicates signals greater than -20dBu, the yellow '**0**' LED represents normal operating level, and the red **PEAK** LED warns of potential overload 5dB before clipping. Set the channel so that the meter averages '**0**'. Back the gain off if the red peak LED flashes.

Pressing **PFL** automatically interrupts the headphone monitor signal to let you listen to the channel pre-fader signal without interrupting the main console outputs. The signal level is shown on the LR monitor bargraph meters, and on the Mono/PFL meter if the optional meterpod is fitted. In this way each sound can be correctly lined up and checked at any time.

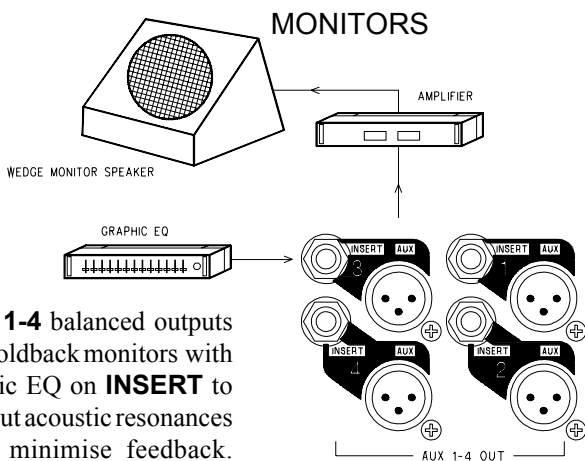
DIRECT OUT taps the signal off post fader for connection to external processing or recording equipment. This is ideal for multitrack recording during live performance as each channel can be recorded onto a separate track for mixdown later. The direct out signal can be set pre-fader if the internal link option is changed. Refer to the Internal Link Options section in this user guide.



INPUT BLOCK DIAGRAMS



AUX SENDS

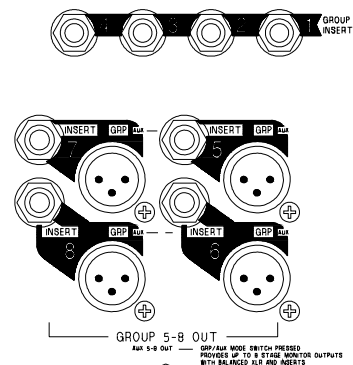


AUX 1-4 balanced outputs feed foldback monitors with graphic EQ on **INSERT** to tune out acoustic resonances or to minimise feedback. **AFL** lets you check the output signal after the insert and master level control.

EFFECTS

GROUPS

AUX 5-8 jack outputs to send selected signals to external effects devices.



GROUPS 5-8 are available on balanced XLR outputs to drive long cable runs. **INSERTS** are provided on all 8 groups to insert signal processing devices such as compressor/limiters into the signal path. Use these outputs as additional speaker feeds or for recording. In **'MONITOR MODE'**, **GROUPS 5-8** become **AUX 5-8** outputs to provide a total of 8 dedicated stage monitor sends on XLR with inserts.

MUTE switches the signal off. Muted groups are indicated by red LEDs. **AFL** lets you check the output signal after the insert and fader control. Each group has 4 way LED metering providing signal presence indication and peak warning which illuminates approximately 5dB before clipping.

The subgrouping is always fed from the group mix regardless of **GRP/AUX REVERSE**.

All the XLR outputs operate at a nominal high level +4dBu. Ensure correct matching to external equipment.

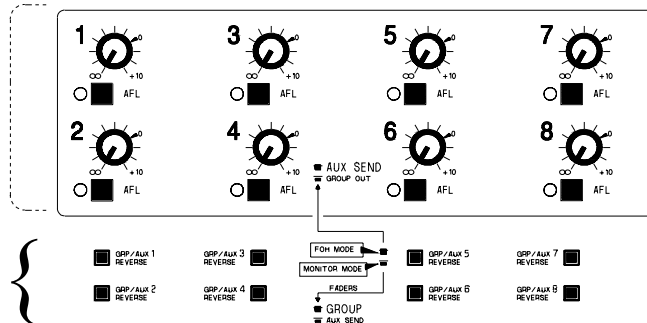
MODE SWITCHES

Decide your required console configuration and set these recessed switches using a pen tip or similar.

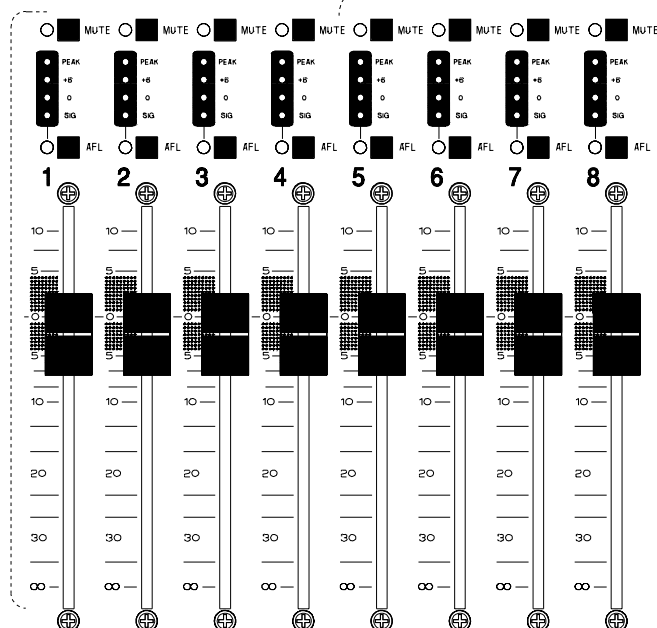
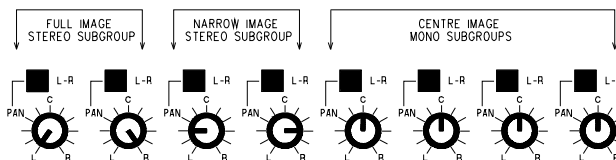
Press **REVERSE** to swap the group fader section with the aux master section. This represents **'MONITOR MODE'** where the aux mix is on the fader with **METER**, **AFL**, **MUTE**, balanced XLR output and **INSERT** for full control of the monitor mix. **AFL** lets you listen to and check the effect of the inserted graphic EQ or similar processing device.

In this mode the group mix is available on the aux master controls to feed the jack outputs, as well as the subgroup section.

Mix and match this fader section as you require. For example you could have 2 as monitor sends, 4 as subgroups, and 2 as additional outputs.



These **PAN** settings show subgroup 1-2 as a stereo pair, and subgroup 3-4 panned off centre to slightly close the stereo image, useful when the speaker stacks are widely spaced and the front rows of the audience may be confused by a full stereo image.



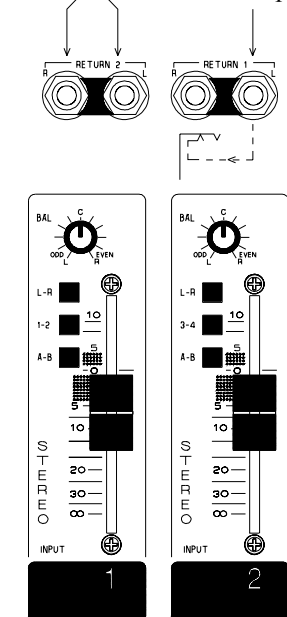
SUBGROUPING

Using subgroups lets you group similar sounds together under control of a single fader (mono subgroup), or panned pair of faders (stereo subgroup). For example, the mics on a drum kit (kick, snare, overheads, toms), backing vocals, stage mics, orchestral wind section etc.

Select **L-R ON** to route a group to L-R as a subgroup. Position the signal within the stereo image using **PAN**.

STEREO RETURNS

The **L** and **R** inputs are on individual jack sockets. Sensitivity is for line level signals of -10dBV and more. For a mono source plug into the **L** input only.



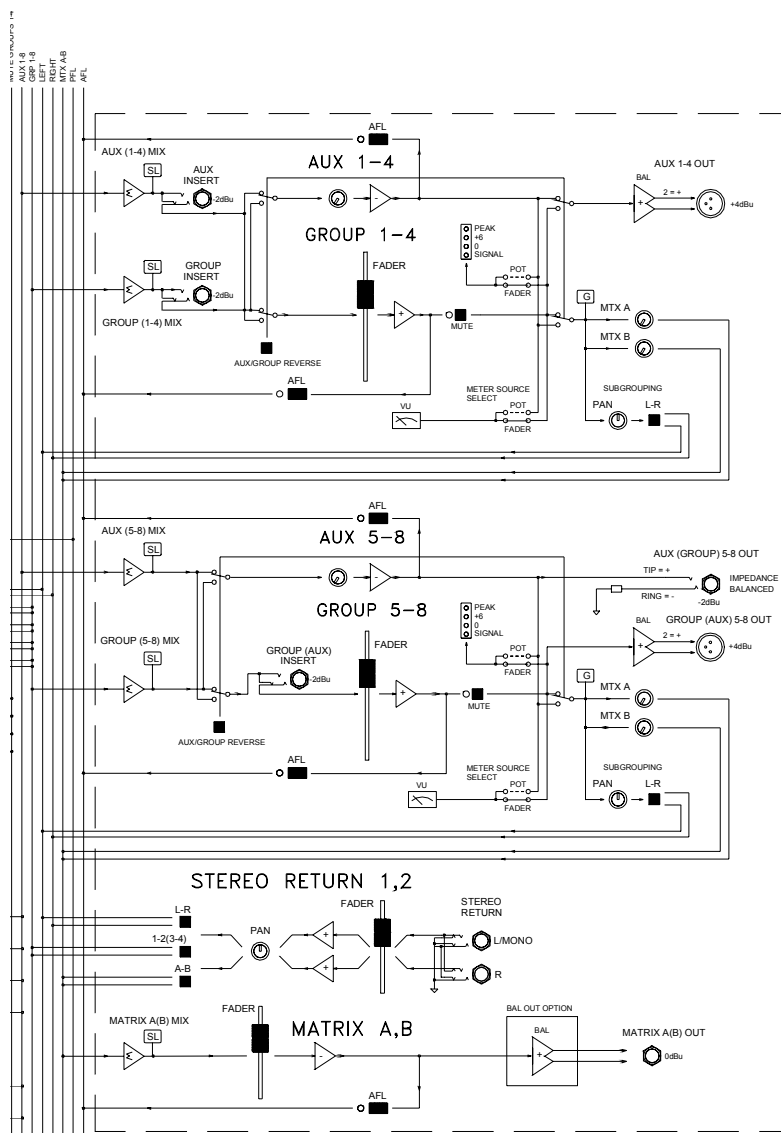
2 Stereo return inputs are provided to return the effects ('wet') signal, usually from a stereo device, to the mix. These are normally routed to the main **L-R** mix but may be returned to the corresponding pairs of subgroups for group effects (**1-2** or **3-4**).

These inputs may also be used as additional line inputs, or as external inputs to the matrix mix by selecting **A-B**. The **BAL** control adjusts the balance between left and right signals, or can be used as a pan control to route the signal to one side only by rotating fully. A smooth travel 60mm fader provides precise control of the level.

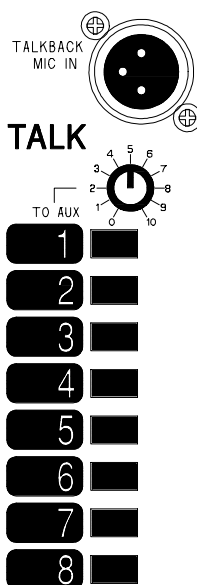
Recording from the GROUPS

There are two ways of recording from the groups. One is to connect the multitrack inputs to the group **INSERT** send and link the send and return (jack tip to ring) together.

Alternatively, install the 8 group output option. All outputs are impedance balanced +4dBu or -10dBV and available on a single 25 way D type connector on the rear panel. (Refer to the Options and Accessories section.)



TALKBACK

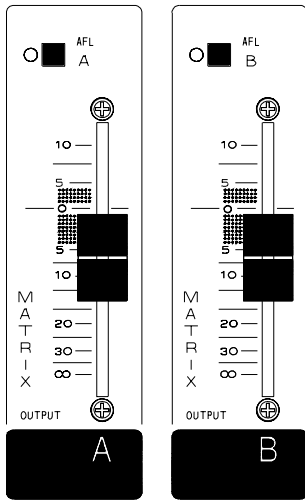
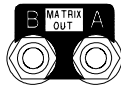


Balanced XLR input for a gooseneck (or cable) microphone for the operator to talk to the aux sends (foldback monitors). **+48V** may be enabled by means of an internal link for microphones which require phantom power. Refer to the Internal Link Options section in this user guide

Talk to the required aux mix by pressing and holding the appropriate switch. Talk to several at the same time by holding down a combination of switches.

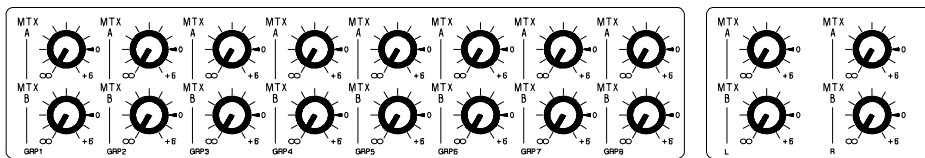
The ability to talk to individual auxes is important when using the console for stage monitoring and cueing the performers.

MATRIX



Two matrix outputs **A** and **B** are provided. These are additional outputs on TRS jacks controlled by 60mm smooth travel **FADERS** and with **AFL** monitoring to check the post fader signal. The matrix mix is created from the 8 groups, L and R by adjusting the **MTX** level controls. These signals are fed post their respective faders. Note that in '**MONITOR MODE**' (**REVERSE** selected) the matrix is still fed from the groups (now routed via the aux masters). External inputs to the matrix are available from the adjacent stereo returns. The matrix outputs can be balanced by fitting the balance option, refer to the Internal Link Options section in this user guide.

The matrix outputs satisfy a host of applications. Traditionally the matrix has been used to feed additional speaker systems such as auditorium balcony speakers. These are fed through delay units to compensate for acoustic delay due to the distance from the main speakers. Here the balance of the mix may be slightly different from the main speakers, for example vocal light to keep the vocals nearer the stage. Adjusting the balance of the groups to the matrix achieves this. Another example is live sound recording where the PA mix may be necessarily lacking in bass due to the acoustic output of the orchestra or 'backline'. Compensate for this by recording from the matrix with the group feeds adjusted for an even recording balance.



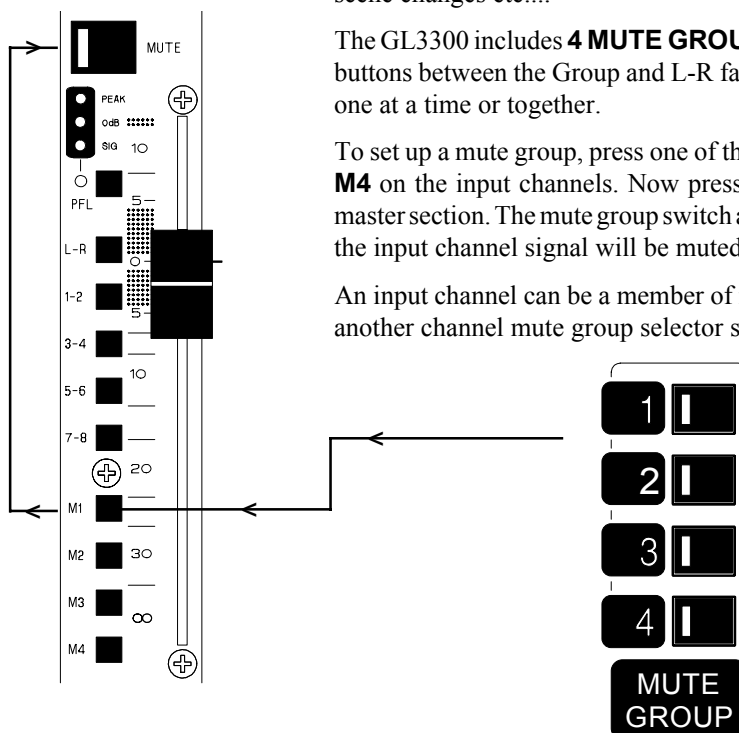
MUTE GROUPS

MUTE GROUPS let you mute a selected combination of channels with a single key press. Applications include muting unused channels when mixing different bands, muting all channels except 2-track playback during intermission, muting effects, muting a bank of radio mics during an instrumental number, muting stage mics during scene changes etc....

The GL3300 includes **4 MUTE GROUPS** controlled by a bank of 4 large illuminated buttons between the Group and L-R faders. These latching switches may be selected one at a time or together.

To set up a mute group, press one of the mute group selector switches **M1**, **M2**, **M3**, **M4** on the input channels. Now press the corresponding mute group switch in the master section. The mute group switch and the channel mute switch will illuminate and the input channel signal will be muted.

An input channel can be a member of more than one mute group by simply pressing another channel mute group selector switch.

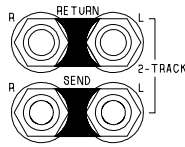


LAMP



Plug in a 12V gooseneck lamp to provide illumination of the control panel. This should be a BNC connector type.

2-TRACK



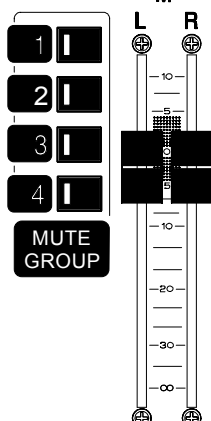
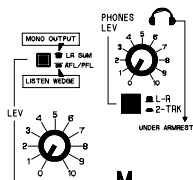
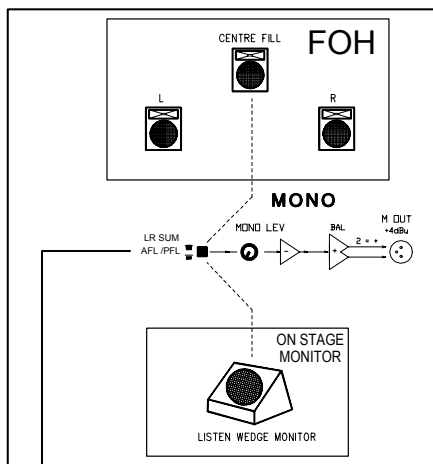
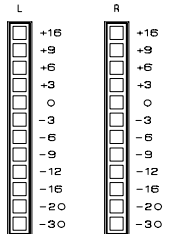
Individual jack sockets are provided for left and right inputs (returns) from and outputs (sends) to a stereo recorder such as a DAT or cassette machine.

Alternatively the **RETURN** may be used for stereo intermission replay from a CD or similar to the main mix by pressing **L-R**. An LED warns that replay is on.

The **SEND** may be used for recording the performance in stereo, or to feed alternative speakers, drive an induction loop hearing aid system, or to feed a stereo broadcast etc. The send is connected post L-R faders as standard.

Separate send and return level controls adjust the signal to the required line level and sensitivity. The console can work with both high (+4dBu) and low (-10dBV) level equipment.

PFL/AFL



PHONES MONITOR

Plug in stereo headphones (30 to 600 ohms recommended) under the armrest. Adjust the **LEV** control for comfortable listening level. The phones and 12 segment bargraph meters normally monitor the post-fade L-R mix. Press **2-TRK** to monitor the return from a stereo recorder if connected.

Pressing **AFL** anywhere on the console automatically overrides the monitor with the selected AFL signal. Pressing **PFL** overrides both the monitor source and any selected **AFL**. This feature lets you listen to an AFL source, group for example, and check channel signals simply by pressing and releasing the required **PFL** buttons. PFL or AFL selected is indicated by means of a large red LED above the meters.

MONITOR MODE

Press the mode switch for **STAGE MONITOR** application. The mono out XLR now feeds the monitor engineers 'listen wedge' speaker. It is advisable that the same type of loudspeaker is used for this as those used for the stage monitors themselves.

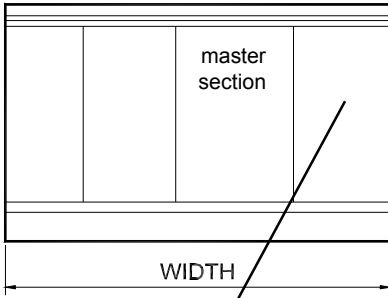
Select your required application: LR sum mono out **FOH**, or AFL interrupted by PFL, **STAGE MONITOR**.

L,R,M OUTPUTS

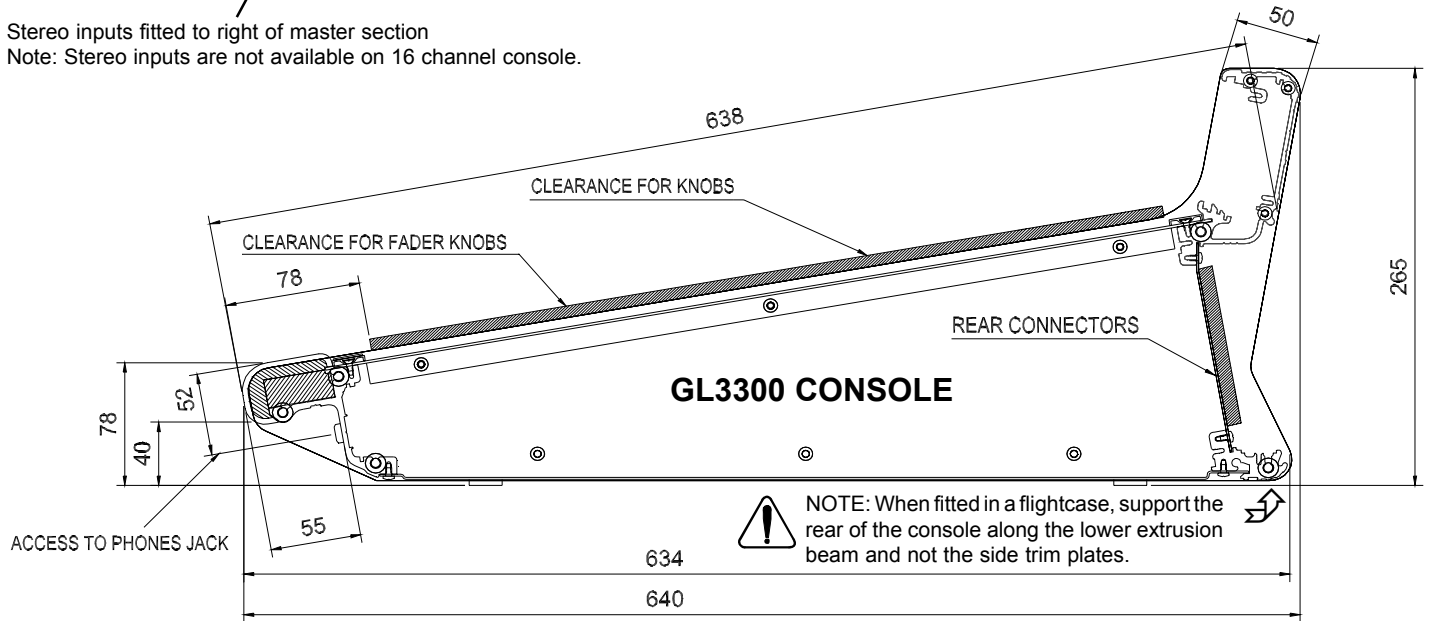
The main **L** and **R** outputs are individually controlled on two 100mm long throw faders. The outputs are balanced XLR to drive long cable runs. **INSERT** points are provided so that signal processors such as compressors or limiters may be patched into the signal path.

Left and right signals are summed together to feed the balanced XLR **MONO** output which may be used to feed a centre fill speaker system, provide a mono broadcast or recording feed, or work a mono PA with capability for stereo recording. The **MONO** output is post fade but can be set pre-fade by changing internal link options.

DIMENSIONS



Stereo inputs fitted to right of master section
Note: Stereo inputs are not available on 16 channel console.



UNPACKED MEASUREMENTS in mm (inches)

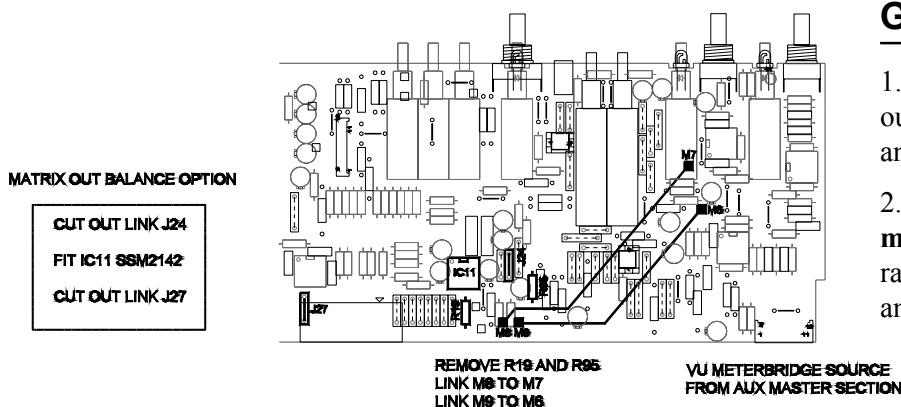
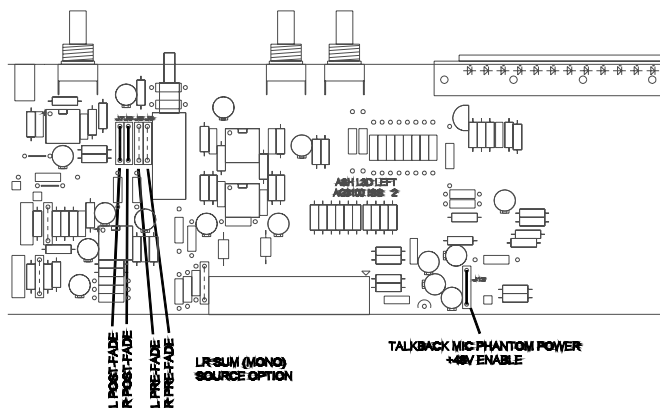
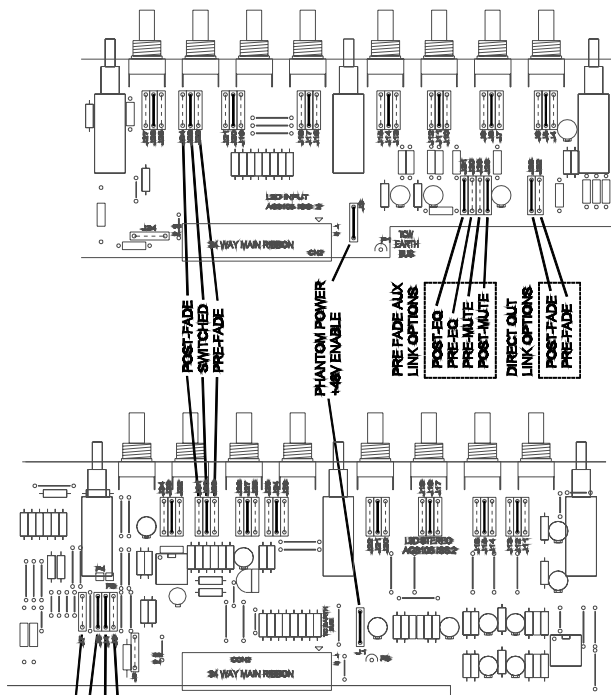
	WIDTH	DEPTH	HEIGHT	WEIGHT in Kg (lbs)
GL3300- 816	771 (30)	634 (25)	176 (7)	21 (46)
GL3300M- 824	1026 (40)	640 (25)	265 (10)	33 (73)
GL3300M- 832	1281 (50)	640 (25)	265 (10)	42 (93)
GL3300M- 840	1536 (60)	640 (25)	265 (10)	51 (112)
GL3300 Expander	255 (10)	640 (25)	176 (7)	8 (18)
RPSD2	482 (19)	145 (6)	45 (2)	2.5 (6)
RPS9 PSU	482 (19)	135 (5)	96 (4)	6 (13)
RPS11 PSU	482 (19)	232 (9)	133 (5)	10 (22)

PACKED MEASUREMENTS in mm (inches)

	WIDTH	DEPTH	HEIGHT	WEIGHT in Kg (lbs)
GL3300- 816	1430 (56)	845 (33)	370 (15)	38 (84)
GL3300M- 824	1430 (56)	845 (33)	370 (15)	49 (108)
GL3300M- 832	1940 (76)	845 (33)	370 (15)	60 (132)
GL3300M- 840	1940 (76)	845 (33)	370 (15)	65 (143)
GL3300 Expander	420 (17)	885 (35)	325 (13)	11 (24)
RPSD2	535 (21)	410 (16)	135 (5)	4 (9)
RPS9 PSU	530 (21)	270 (11)	200 (8)	7 (15)
RPS11 PSU	520 (20)	330 (13)	215 (8)	12 (26)

INTERNAL LINK OPTIONS

The console is set to satisfy most applications that should be encountered. However, the following internal link options are offered to provide alternative settings for those applications that may require them. These options involve resoldering of circuit board links and should only be carried out by competent technical personnel. Further information is available in the **GL3300 SERVICE MANUAL** and from your agent.



MONO INPUT

1. Reconfigure each aux as required to be **permanently pre-fade or post-fade** rather than switched by the front panel **PRE/POST** switch.
2. Reconfigure the pre-fade sends to be **post-EQ / pre-mute**, or **pre-EQ / post-mute**, instead of the standard post-EQ / post-mute.
3. **Disable +48V** phantom power regardless of panel switch position - remove link.
4. Reconfigure Direct Out to be **pre-fader** instead of post fader.

STEREO INPUT

1. Reconfigure each aux as required to be **permanently pre-fade or post-fade** rather than switched by the front panel **PRE/POST** switch.
2. Reconfigure the pre-fade sends to be **post-EQ / pre-mute**, or **pre-EQ / post-mute**, instead of the standard post-EQ / post-mute.
3. **Disable +48V** phantom power regardless of panel switch position - remove link.

LEFT

1. Reconfigure the **LR sum source** (mono) from post LR faders to pre faders.
2. **Enable +48V** phantom power to talkback mic input - fit link.

GROUP

1. Fit **Matrix out balance option** for jack output tip = hot, ring = cold. Remove two links and plug in balance driver IC.
2. Reconfigure the **feed to the optional VU meterpod** to follow the aux master rotary control rather than the group fader - remove two resistors and link two pairs of pads with a length of wire.

